**FIRST DRAFT – EPA comments on Appendix D Toxins of BDCP "Effects Analysis"**

**General Comments**

1. Information presented in this document appears to be incomplete and out of date.
2. We understand the effects analysis is focused on threatened and endangered (T & E) species, however we want to remind DWR and ICF that if the Army Corps of Engineers is to use this NEPA document to support a CWA Section 404 permit, the direct, indirect, and cumulative impacts of BDCP projects must be estimated and disclosed for non T & E wildlife and aquatic resources. Specifically relevant to the CWA Section 404 permit are the direct, indirect, and cumulative impacts of project actions on designated uses of Delta waterways that have been adopted by the State of California under the delegated CWA Water Quality Standards program. Estimation and disclosure of impacts to wildlife and other aquatic life are also required under NEPA.
3. Similarly, methods used to evaluate the impact of the preliminary proposal on exposure of T & E species and other wild and aquatic life to toxins must be robust enough to inform regulatory decisions.

**Executive Summary**

1. Table D-1 is confusing. The explanation says it is an overview of conclusions drawn from the toxins analysis but in the notes at the end the color coding says it is probability of [species] occurrence in the area. The color coding terms "none, low, moderate, and high" are defined at the beginning of the table.
    a. Recommend combining the definition of terms and color coding in one place.
    b. Reconcile the color coding with the term definitions, is it species presence? Or is it species/life stage occurrence with toxins.
    c. Using consistent coloring with Table D-7. Table D-1 appears to be a condensed version of Table D-7 which is in black and white and uses similar but not identical terms (none, low, medium, high). These tables should be consistent with one another.
2. It would be helpful to provide text in the Executive Summary to accompany and explain the table.

**Section D.2 Organization of Appendix**

1. Provide estimates of direct, indirect (secondary in CWA), and cumulative impacts from changes in species exposure to toxins that result from preliminary proposal actions for each T & E species as well as other aquatic species and aquatic dependent wildlife. Describe where this information is located in the EIS if it is not included here. Describe why this information is not included here if it is provided elsewhere in the document.
2. Provide a citation/endnote listing the groups that recognize the stressors included in this section as significant to determining the potential of the Bay-Delta ecosystem to support covered species. This will support the statement of "wide recognition," increase the integrity of the document, and support the choices to include specific stressors and exclude others. Examples include DSC ISB stressors panel work, IEP POD documents, CWA Section 303(d) list of water

quality impairments that identify toxins as sources of aquatic resource designated use impairments, and NRC other stressors work/assignment.

3. Improve the description of the current state of toxins in the Delta. This piece is mostly missing from each section. The following information should be provided describing the current state of each toxin in its relevant section.
   a. Stressors listed as the source of designated use impairments in the Delta on the CWA 303(d) List of Impaired Waterbodies.
   b. Provide water quality criteria/objectives adopted by CA in the water quality control plans? The Sacramento and San Joaquin River Basin Plan is available here http://www.swrcb.ca.gov/centralvalley/water_issues/basin_plans/index.shtml and the Sacramento-San Joaquin River Delta Water Quality Control Plan is available here http://www.waterboards.ca.gov/waterrights/water_issues/programs/bay_delta/wq_control_plans/2006wqcp/index.shtml.
   c. Provide the federal guidance criteria (we realize they are provided in some sections).
   d. Disclose whether or not the stressor is exceeding water quality objectives or federal guidance criteria. Include information about where water quality objectives are exceeded and how often. A map is a good way to communicate these concepts.
   e. Identify the stressors that have been documented to cause aquatic toxicity and when? What are the sources?
   f. Which of the stressors have adopted TMDLs with waste load and load allocations limiting discharges to the Delta? Which stressors have TMDLs in development?
   g. Provide the waste load and load allocations and how they may affect or be implemented by the preliminary proposal.

**Section D.3.1 Selection of Water Quality Stressors for Analysis**

1. Describe the process for selecting water quality stressors for analysis.
2. Recognize that the Delta is the downstream recipient of urban runoff from very large urban centers located immediately upstream of the Delta. The document states many times, including this section, that urban land use accounts for only 9% of the Delta area. This statement is used as a reason to provide less detail on urban contaminants and indicates that pollutants/toxins in urban runoff should not be a big concern. However, contaminants are the source of aquatic toxicity and impairments to aquatic resource designated uses in the Delta. And contaminants-caused impairments persist in the Delta, regardless of the urban land use coverage in the Delta. This does not appear to be a legitimate reason to provide less analysis.
   a. Recommend balancing the discussion by identifying the Delta is the downstream collector of toxins in runoff from large urban and agricultural areas.
   b. Recommend stating specifically why a more rigorous analysis was not provided or has not been done.
3. Support this statement "Rural developments associated with agricultural land use have minimal water quality impacts," by providing a citation and/or explanation for the statement. OR remove the statement if it is not supported by academic literature or water quality monitoring

programs.

a. Provide examples of the types of water quality impacts rural developments have, especially in the Delta with septic systems located below sea level.
b. Describe and reference water quality data that show the levels of rural development water quality impacts as minimal compared to other sources.

4. The small percentage of urban land in the Delta is not a sufficient reason to provide less detail on urban toxins and how they may change as a result of the preliminary proposal.
5. Recommend moving the paragraph "The environmental toxins discussed below were selected based on historical and current land use …" and the bullets outlining mercury, selenium, copper, ammonia, and pesticides to the front of the section.
6. Recommend consulting the CWA Section 303(d) List (http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml) and using it as a source for informing the choice of toxins to consider evaluating in this section.

**Section D.4 Methods**

1. Methods used in this analysis need to be clearly disclosed and described in this document.
2. Methods need to be robust enough to inform regulatory decisions.
3. Use CA adopted water quality objectives as referents. These are available in water quality control plans. Use both the narrative and numeric objectives. This is very important because the CWA restricts permitting under Section 404 to those projects that do not violate state water quality standards, these include water quality criteria/objectives and supporting designated/beneficial uses which address aquatic resources and habitat for a broad range of species. The Corps and State Board need this information in the NEPA document if they are to use it as the foundation for decision making in CWA 404 and 401 permit and certification processes.
4. NEPA and CWA require disclosure of impacts on more than just T & E species. Please identify the location in the EIS that evaluates the impact of toxins on other wildlife and aquatic life that are not listed species.

**Section D.5.1 Mercury**

1. Describe the current status of methylmercury water quality problem.
   a. Use the updated 2010 303(d) List instead of the 2007 citation. It is available at http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml
   b. We recommend providing a map showing the 303(d) waters with designated uses impaired by methylmercury in the Delta, locations of the greatest source loads, and locations where monitoring data show levels of methylmercury that exceed load and/or objectives.
   c. Monitoring data can be accessed through the Lines of Evidence (LOE) links provided on the 303(d) List which can be accessed by the link provided above.
   d. Describe how often water quality objectives are exceeded and where.
2. Update the text to be consistent with the Delta Methylmercury TMDL adopted by CVRWQCB on April 22, 2010.

a. Important documents read and incorporate include:
   i. The TMDL document or resolution R5-2010-0043 *available at* http://www.waterboards.ca.gov/centralvalley/board_decisions/adopted_orders/resolutions/r5-2010-0043_res.pdf
   ii. Staff Report on Amendments to the Water Quality Control Plan for the Sacramento River and San Joaquin River Basins for the Control of Methylmercury and Total Mercury in the Sacramento-San Joaquin Delta Estuary *available at* http://www.swrcb.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_hg/april_2010_hg_tmdl_hearing/apr2010_bpa_staffrpt_final.pdf.

b. Include the fish tissue objectives in the description of current status/water quality problem.

3. Improve the discussion of mercury location, environmental fate, and transport by describing and including these studies:
   a. Methylmercury cycling, bioaccumulation, and export from agricultural and non-agricultural wetlands in the Yolo Bypass. http://www.swrcb.ca.gov/centralvalley/water_issues/tmdl/central_valley_projects/delta_hg/other_technical_reports/ybwa_hg_final_rpt.pdf
   b. Ackermman, J.T., and Eagles-Smith, C.A., 2010, Agricultural wetlands as potential hotspots for mercury bioaccumulation: Experimental evidence using caged fish. Environmental Science and Technology, v. 44 p. 1451-1457.
4. Water operations
   a. Describe how changes in circulation caused by operations impact mercury and methylmercury exposure to T & E species and other aquatic and wildlife.
   b. Quantitative estimates of the impact of water operations on the production, transport, and impact of methylmercury on T & Species (identified by loads and water column and fish tissue concentrations) and other aquatic and wildlife in the Delta must be provided in order to determine whether or not the Delta Conveyance Project and its operations cause or contribute to violations of water quality standards. If this information is not provided, the Army Corps of Engineers will need to supplement the NEPA documentation and/or federal regulations at 40 CFR 230.12(a)(3)(iv) may prohibit the Army Corps of Engineers from granting a CWA Section 404 permit.
   c. Provide a clear conclusion statement describing the effect of operations on mercury and melthylmercury exposure to T & Species (identified by loads and water column and fish tissue concentrations) and other aquatic and wildlife in the Delta.
5. Restoration
   a. Describe the actions BDCP agencies would be required to carry out under the MeHG TMDL. BDCP agencies manage controllable factors that contribute to MeHG production, and they are subject to requirements under the recently adopted MeHG TMDL. Largely, this relates to monitoring and control studies in open water and flood plain environments. We recommend reading the TMDL and staff report and updating this document accordingly.
   b. Describe how changes in circulation caused by operations impact mercury and methylmercury exposure to T & E species and other aquatic and wildlife.
   c. Provide a clear conclusion statement describing the effect of operations on mercury and

melthylmercury exposure to T & Species (identified by loads and water column and fish tissue concentrations) and other aquatic and wildlife in the Delta.

6. Modeling results
   a. Please provide details on the quantitative modeling such as inputs, equations, chosen constants and results.
   b. Describe modeling results and provide a context for interpretation such as water quality objectives.

**Section D.5.2 Selenium**

1. Describe the current status of selenium water quality problem.
   a. Use the updated 2010 303(d) List instead of the 2007 citation. It is available at http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml
   b. List CA adopted water quality objectives.
   c. Recommend a map showing the 303(d) impaired waters and the greatest sources of loads.
   d. Identify areas using a map that are and are not in compliance/meeting existing Se objectives.
   e. Describe how often water quality objectives are exceeded.
   f. Discuss the anticipated update to selenium objectives and the reasons for the update which are based on current objectives not being protective enough of aquatic resources.
2. This section reflects an outdated understanding of the state of selenium water quality problems in the Delta. Please read the following resources and update the document accordingly:
   a. Unabridged Advanced Notice of Proposed Rule-making on Water Quality Challenges in the San Francisco Bay Delta Estuary *available at* http://www.epa.gov/region9/water/watershed/sfbay-delta/pdf/BayDeltaANPR-fr_unabridged.pdf
   b. Nonpoint Source Program Success Story: Grasslands Bypass Project Reduces Selenium in the San Joaquin Basin *available at* http://water.epa.gov/polwaste/nps/success319/upload/ca_sanjoaquin.pdf
   c. Any others?
3. A quantitative model for selenium that includes the Delta was developed for the North Bay TMDL. We recommend updating this document with text that summarizes the North Bay Selenium TMDL regarding Se sources and controls and using the quantitative model to estimate the impact of BDCP on the availability of selenium for biological uptake and impairment.
4. Include information about foodweb/ ecosystem and estuarine dynamics models that link important variables affecting selenium bioavailability, bioaccumulation and exposure. We should encourage using this conceptual framework to evaluate potential effects of actions.
5. Discuss what we still need to learn about. the processes driving the variations in selenium concentrations in B-D foodwebs (e.g., inter-annual variations in clam uptake)
6. We should pass on an update of EPA's work toward promulgating site-specific criteria for the B-D and the species and areas of particular concern (eg sturgeon, Suisun). This raises some question about the BDCP conclusions that the anticipated levels of Se loading to Delta will not

be problematic (judged by current wqs).

7. The statement "Decreased Sacramento River flows into the Delta as a result of the preliminary proposal are expected to result in minimal effects on selenium water concentrations in the Delta," is unsupported by text in the document.

**Section D.5.3 Copper**

**Section D.5.4 Ammonia/Ammonium**

1. Describe the current status of ammonia as a water quality problem.
    a. What water quality criteria/objectives are used to evaluate ammonia and ammonium?
    b. Are any waters listed as impaired due to ammonia/ammonium? The current 303(d) list is available at http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml
    c. Provide a balanced and comprehensive description of the research on ammonia/ammonium in the Bay Delta and where ammonia/ammonium is thought to have impacts that may be connected to the POD.
2. Make a clear statement about the impact of water operations on the toxicity of ammonia/ammonium on the Delta and describe the technical information/analyses with citations that support this conclusion.
3. Put the above statement in context and compare the time frames for fully operational ammonium and nitrate removal and the beginning of water operations. What is the impact of water operations prior to ammonium and nitrate removal?
4. Extend analysis down to Suisun Bay.

**Section D.5.5 Pyrethroid Pesticides**

1. Describe the current status of pyrethroid water quality problem.
    a. Refer to the updated 2010 303(d) List. It is available at http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml
    b. List CA adopted water quality objectives, even if only narrative toxicity criteria. You can it in the Sacramento River and San Joaquin River Water Quality Control Plan.
    c. Recommend a map showing the 303(d) impaired waters and the greatest sources of loads. You will need to extend outside of the Delta for this exercise.
    d. Identify areas using a map that showed aquatic toxicity in urban runoff from pyrethroids and the location of the Sac Regional WWTP outfall that also discharges pyrethroids.
    e. Describe how often are water quality objectives exceeded.
    f. Discuss upcoming Central Valley Basin Plan Amendment and TMDL for Pesticides (including pyrethroids).
2. Water operations – Evaluate loss of assimilation capacity from taking cleaner Sacramento River water out of the system as well as loss of circulation and volume in the southern Delta water ways.
3. Restoration – Discuss potential for pesticides to be used in mosquito abatement programs over wetlands after restoration takes place.

**Section D.5.6 Organochlorine Pesticides**

1. Describe the current status of organochlorine water quality problem.
    a. Refer to the updated 2010 303(d) List. It is available at http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml
    b. List CA adopted water quality objectives, even if only narrative toxicity criteria. You can it in the Sacramento River and San Joaquin River Water Quality Control Plan.
    c. Recommend providing a map showing the 303(d) impaired waters and the greatest sources of loads. You will need to extend outside of the Delta for this exercise.
    d. Describe how often and where water quality objectives are exceeded.
    e. Discuss upcoming Central Valley Organochlorine Basin Plan Amendment and TMDL.
2. Typo – organophosphate is incorrectly used (should be organochlorine) in a number of different places in this section.
3. Water operations – why is reduced assimilation capacity from taking cleaner Sacramento River water upstream not listed as a potential impact?

**Section D.5.7 Organophosphate Pesticides**

1. Describe the current status of organophosphate water quality problem in the Delta.
    a. Refer to the updated 2010 303(d) List. It is available at http://www.waterboards.ca.gov/water_issues/programs/tmdl/integrated2010.shtml
    b. List CA adopted water quality objectives, even if only narrative toxicity criteria. You can it in the Sacramento River and San Joaquin River Water Quality Control Plan.
    c. Recommend providing a map showing the 303(d) impaired waters and the greatest sources of loads. You will need to extend outside of the Delta for this exercise.
    d. Describe how often and where water quality objectives are exceeded.
    e. Discuss upcoming Central Valley Pesticides Basin Plan Amendment and TMDL, organophosphates are addressed in Phase I.
2. Water operations – why is reduced assimilation capacity from taking cleaner Sacramento River water upstream not listed as a potential impact?
3. The statement in water operations section is not supported by any information provided in the document.

**Section D.5.8 Endocrine Disruptors**

**Section D.5.9 Other Urban contaminants**

1. Nonnative Aquatic Vegetation Control – need to mention BO's are up for renewal on Weedar, Rodeo, R-11. NMFS recently delayed release.

**Section D.6**

1. Condensation of unsupported conclusions that operations and restoration will not negatively impact T & E species by altering availability of and exposure to toxins.